Sense of School Belonging: The Illusion of a School-Size Effect

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Abstract: Over the past thirty years, the sense of school belonging received increasing attention in the educational field because of the many developmental and educational advantages associated with it. Previous research suggested that small schools are in a better position to create a strong sense of belonging among students. The aim of our study was to test the effect of school size on students’ sense of school belonging and to test whether this effect holds after considering the effect of the classroom after controlling for individual differences. The study was conducted on a sample of 1698 sixth- and seventh-grade students distributed among 20 school institutes in Switzerland. Multilevel analyses have been conducted. While first results showed an effect of the school size on the sense of school belonging, a comparison of the two-level and three-level hierarchical linear models showed that this effect is no longer significant when considering the intermediate level of the classroom in the analysis, indicating that previous research may have overestimated the effect of school size on the sense of school belonging. These evidence raises the question of which levels of the school environment are more relevant to better understanding individual differences in the sense of school belonging.

Keywords: sense of school belonging; school size; multilevel analysis

1. Introduction

Research in the educational field has widely confirmed the positive effects of a general sense of belonging for several individual physical, psychological, and social outcomes, although less has yet been established in relation to the construct of sense of school belonging [1]. Recent studies [2,3] highlighted the growing attention recently devoted to the sense of school belonging in relation to its ability to predict several developmental and educational outcomes and its contribution in promoting students’ academic achievements and well-being. In fact, research has confirmed that adolescents who feel more a part of their educational community show better academic performances and are more motivated to learn [4]. Furthermore, a strong sense of school belonging reduces the risk of engaging in dangerous or antisocial behaviors [5,6], of dropping out of school [4], and of using psychoactive substances [7,8]. It has also been shown that a lack of sense of school belonging was associated with several negative developmental outcomes, regarding mental health and social and psychological development [9]. More generally, the sense of school belonging is considered a crucial factor for adolescents’ health and well-being [10].

While there is a wealth of work on the individual and relational variables associated with the sense of school belonging, e.g., [4,11–16], fewer studies have examined the relationship between school belonging and school characteristics, e.g., [17–19]. Researchers seem to agree that schools do make a difference in students’ sense of belonging [2,20], but the underlying mechanisms is still an open field of investigation; little is known about the extent to which the school sense of belonging varies across schools and which school characteristics are associated with these variations.
Several school climate variables such as disciplinary climate, parent involvement, and teacher support have been identified as playing an important role in explaining students’ sense of belonging [2,19]. School size is another characteristic that has been the subject of various studies in the past, although these have declined in more recent years. While some studies, e.g., [21], found inconsistent results concerning the relationship between students’ sense of school belonging and school size, others, e.g., [17,22–24] suggested that, in secondary education, smaller schools have an advantage over larger ones. For example, attending a smaller school would result in higher student engagement, better interpersonal relationships, easier management of individuals, and more collaborative practices [19]. From a methodological perspective, many studies have emphasized the need to consider the hierarchical structure of the data when analyzing the effects of the school context on students’ outcomes, behaviors, or attitudes [25,26]. However, studies that use the full hierarchical structure in order to consider both classrooms and schools levels are quite rare, mainly because information on one of the levels is often missing.

Therefore, with this study, using multilevel analysis [27,28], the aim was, first, to test one school effect on the sense of school belonging—in our particular case, a school-size effect—and second, to test whether this effect holds after considering the effect of the classroom after controlling for individual differences.

2. The Sense of School Belonging

The sense of belonging is one of the basic human needs [29]. According to St-Amand et al. [30], building on the work of Baumeister and Leary [31], for humans “the need for frequent interactions is universal, as is the need for stable, affectionate connections” (p. 4). For adolescents, school is the main environment for social interactions and for feeling safe, integrated, and recognized as a full member of a community, contributing to cognitive, psychological, and social development [20]. The sense of school belonging is a multidimensional construct [3] that can be generally defined as “the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment” [14] (p. 80). This feeling seems to play an essential role in a wide range of educational processes. For Wang et al. [32], it appears to be a necessary component of school programs for at-risk populations. As noted by the OCDE [20], there are several reasons for focusing on the sense of school belonging. First, there is reciprocal connection between the sense of school belonging and academic performance: the sense of belonging enhances students’ motivation and engagement in complex academic tasks [4,11,14], and their academic self-efficacy [33], thus contributing to improvements in academic performance [16,34], which, in turn, reinforces social acceptance and the sense of belonging [35]. A sense of school belonging is also associated with students’ self-esteem [16,36] and their overall satisfaction with life [37,38], and well-being [39]. It is also negatively correlated with anxiety and depression [15,40,41], and it has been shown to negatively predict internalizing and externalizing symptoms [37]. Indeed, students who demonstrate a higher sense of school belonging engage in less delinquent or risky behavior [42] and use less psychoactive substances, tobacco, or alcohol [7,8,14,43,44]. The sense of school belonging seems to be fostered by social support from peer, parents, or teachers [2,45–47] and by good quality teacher–student relationships [3,48,49], peer belonging [49,50], and friendship [51]. Studies have also shown that a sense of belonging is negatively related to school dropout [4] and positively related to school attendance [52]. To summarize, a sense of school belonging has wide-ranging benefits in terms of academic achievement and reduced costs for academic remediation, health promotion, and prevention programs for adolescents [53].

3. School Size and Students’ Adjustment

The topic of school size and its effects on students’ adjustment to school has already been addressed in the literature [54–56]. Several studies showed a positive relation between school size and academic achievements, while others highlighted a negative or a non-linear relation between school size and academic results [54,55].
The literature reviews by Hendriks [54], and Leithwood and Jantzi [55] indicate that, in terms of student engagement to school and attitude toward learning (students’ connection to their school, participation in school activities, and attendance at school), both primary- and secondary-level students are much more likely to feel connected and engaged in smaller schools; that student satisfaction also tends to be lower in larger schools, and this would be partially explained by a negative effect of the school size on school climate. According to their findings, increasing school size would also have a negative effect on students’ ability to identify with their school. Leithwood and Jantzi [55] suggested that the advantage of small schools lies in a facilitated contact with other students, and staff are more likely to know students well. Smaller schools would encourage teachers to take more responsibility for students’ learning and to provide students with more opportunities for more personalized relationships. In other words, smaller structures would tend to increase the connection between students and the educational community. In addition, many forms of social behavior such as classroom disruption, vandalism, aggression, or theft seem to be less likely in smaller schools [57]. Finally, less absenteeism, better attendance, and fewer dropouts have also been observed in small secondary schools; according to Lee and Burkam [58], however, these latter results may have more to do with other organizational conditions than school size, such as teacher–student relationships.

Given the acknowledged importance of the sense of school belonging for several aspects of the school experience and, on the other hand, the limited number of studies in which this variable has been related to school size and to individual and relational aspects of students’ school adjustment, we decided to investigate this relationship using a multilevel analysis. Our hypothesis was that there is a significant effect of school size on school belonging. We decided to test this effect first and, subsequently, to test whether this effect holds after considering the effect of the classroom, controlling for individual variables. Based on previous literature linking them to school belonging [3,33,48–51], the individual variables that we decided to control for were academic self-efficacy, sense of peer belonging, caring adults at school, and friendship intimacy.

4. Method

Participants and Procedure

Data collection took place over a period of four successive school years from 2013/14 to 2016/17. Pre-service teachers administered a questionnaire to all the students in their classes during their traineeship in the schools. The final sample of the study consists of 1698 sixth- and seventh-grade students. Concerning gender, 48% of the students surveyed were girls and 48% were boys; the remaining 4% did not answer the question on gender. The average age of the students was 11.6 years (SD = 0.71; min = 10 years and max = 15 years). With regard to family structure, 65% of the students in the sample lived with both parents, 16% lived with only one parent, 15% had alternating custody, and 4% had another type of family structure. Finally, 57% of the students surveyed spoke only Italian at home; 35% spoke Italian and one or more other languages; and 8% never spoke Italian, which is the language of schooling. The students were enrolled in 20 schools distributed in the Italian-speaking region of Switzerland, where the total number of schools was 35 when the study was conducted. Four schools participated two or three times in the survey during the period under consideration, but within these schools, the students interviewed were never the same. In total, therefore, there were 27 groups, defined as one school in a given school year. Each of these groups consisted, on average, of 63 students, with a minimum of 19 students and a maximum of 163 students. Within the schools, the students in the sample were distributed in 85 classes with, on average, three classes per school (between two and eight classes depending on the school). In our sample, the size of the schools varied from 122 to 610 students, with an average of 395 students per school (SD = 135).

Students were informed that they were free to choose to participate in the research at any time and that they could choose whether to answer the questions. They were also informed regarding the confidentiality of their responses and the purpose of the research.
Ethical approval from the University of Applied Sciences and Arts of Southern Switzerland ethics committee has been obtained for the research.

5. Measures

Data have been collected among sixth- and seventh-grade children attending their first and second years of middle school, using the Middle Years Development Instrument (MDI), which is a population-level measure developed and validated in Canada in English [59] and then translated and validated in Italian [60] for measuring preadolescent well-being. The MDI questionnaire contains several socio-demographic questions (gender, age, living situation, number of siblings, first language learned and spoken, and difficulty reading in Italian language) and 71 items assessing well-being among five domains (social and emotional development, connectedness, school experiences, physical health and well-being, and constructive use of after school time), each comprising scales measuring different constructs, among which include sense of school belonging, academic self-efficacy, peer belonging, caring adult at school, and friendship intimacy.

5.1. Sense of School Belonging

Sense of school belonging was measured with a two-item scale; answers ranged from “not at all” to “a lot” on a five-point Likert scale. The items are “I feel like I belong in this school” and “I feel like I am important to this school”.

5.2. Academic Self-Efficacy

Academic self-efficacy was measured with a three-item scale, which investigated the extent to which children feel capable of achieving academic goals; answers ranged from “not at all” to “a lot” on a 5-point Likert scale. An example item is “I am certain that I can learn the skills taught in school this year”.

5.3. Peer Belonging

Peer belonging was measured with a three-item scale investigating the sense of feeling part of a group of peers. Answers were provided on a five-point Likert scale, ranging from “not at all” to “a lot”. An example item is “I feel part of a group of friends that do things together”.

5.4. Caring Adult at School

Caring adult at school was measured with a three-item scale investigating the extent to which children are aware that, at their school, there is at least one adult that cares for them. Answers were provided on a four-point Likert scale, ranging from “not at all” to “a lot”. An example item is “At my school, there is a teacher or another adult who really cares about me”.

5.5. Friendship Intimacy

Friendship intimacy was measured with a three-item scale investigating the sense of having a deep relationship with at least one peer. Answers were provided on a five-point Likert scale, ranging from “not at all” to “a lot”. An example item is “I have at least one really good friend I can talk to when something is bothering me”.

5.6. School Size

School size (total number of enrolled students per year) was the only school characteristic considered in this study. Unlike the other data, which come from the MDI survey, school size was derived from the official statistics published by the Department of Education, Culture and Sport.
6. Analytical Approach: The Multilevel Model

The hypothesis of a school size effect on students’ sense of school belonging was tested using multilevel models that were developed in the early 1980s to address the fundamental issue of the interaction between individuals and their environment [27,61]. In these models, the environment is conceptualized as a hierarchical configuration of different nested levels in which micro-units (students) belong to a single higher-level unit (schools). These models decompose the total variance in the sense of school belonging into individual and contextual variances simultaneously. Thus, students and schools are considered as two distinct sources of variation in school belonging.

Building a multilevel model is a three distinct steps procedure [62]. First, we specified a two-level null model used to calculate the intraclass correlation coefficient (ICC), which estimates how much variation in school belonging exists between level-2 units (schools). Second, we estimated more complex models by adding student-level variables. Only those with a statistically significant effect were retained in order to propose parsimonious models. The effects of the different variables were modeled as fixed effects. In the specification of this multilevel model, the only random parameter is the intercept. Third, we added our school-level variable of school size. Following the suggestions by Opdenakker and Van Damme [63], who illustrated the extent to which the number of levels considered in multilevel modelling can have an influence on the results and conclusions of a study, a fourth step was added. In particular, the number of levels can have an impact on the estimation of the different components of the variance and on the estimation of the standard errors of these same parameters (i.e., on the precision of the estimates) and can also generate a certain instability in the estimation of the fixed effects associated with the explanatory variables. Ignoring an intermediate contextual level may result in an overestimation of the variance associated with the levels just above and below the ignored level. To overcome these difficulties, Hill and Rowe [64] recommended considering the full hierarchical structure of the data, which leads to a fairer distribution of the total variance of the phenomenon under study and to a better fit of the models to the data. In the same vein, Opdenakker and Van Damme [63] also suggested that all intermediate levels should be taken into account in the analysis of the data, even when no explanatory variables are available for these levels in order to produce better estimates of the various variance parameters. These recommendations are particularly important in the study of a phenomenon such as the sense of school belonging, where differences between schools and the resulting between-school variance are modest. Hence, once the previous complete models were obtained, a new three-level null model incorporating classes in the hierarchical structure of the data was estimated to test the robustness of the two-level models’ results.

7. Results

First, the estimation of two-level null model initially revealed a modest but statistically significant between-school variance (Table 1, Model 1). The calculation of the ICC indicated that, in our sample, the fraction of the total variability of the scores due to the school level amounts to about 2.5% for the sense of school belonging. This result allowed us to continue the analytical approach and to estimate more complex multilevel models that successively integrated student and school characteristics (Table 1, Models 2 and 3).

In the second step of the analytical process, the four individual variables—academic self-efficacy, peer belonging, presence of caring adults at school, and friendship intimacy—were added in the model, and all emerged as positively correlated with the sense of school belonging (Table 1, Model 2). Gender, age, family structure, and language spoken at home were not found statistically significant and were therefore excluded from the model. School size, which was added in the third step, on the other hand, had a negative effect on school belonging (Table 1, Model 3). After controlling for individual characteristics, a statistically significant residual between-school variance remained. The latter represents the specific effect of school on the sense of belonging, in a way, the real school effect. It can be estimated that this school effect explains a modest 1.15% of the variance between scores. It should be
noted that the effect of school on the sense of belonging was only partially related to school size, since the gain in explanatory power induced by the introduction of school size was about 17 percentage points (the level-2 pseudo R² increased from 48.5% to 66.1%) and that part of the between-school variance remained unexplained.

Table 1. Hierarchical linear modeling results of students and school effects on sense of school belonging.

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Model 1 (Null Model)</th>
<th>Model 2 (Model 1 + Level 1)</th>
<th>Model 3 (Model 2 + Level 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>S.E.</td>
<td>p</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.554</td>
<td>0.037 ***</td>
<td></td>
</tr>
<tr>
<td>Academic self-efficacy</td>
<td>0.362</td>
<td>0.036 ***</td>
<td></td>
</tr>
<tr>
<td>Caring adult at school</td>
<td>0.201</td>
<td>0.043 ***</td>
<td></td>
</tr>
<tr>
<td>Peer belonging</td>
<td>0.305</td>
<td>0.041 ***</td>
<td></td>
</tr>
<tr>
<td>Friendship intimacy</td>
<td>0.094</td>
<td>0.024 ***</td>
<td></td>
</tr>
<tr>
<td>School size</td>
<td>−0.001</td>
<td>0.000 *</td>
<td></td>
</tr>
<tr>
<td>Random effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level-two variance (school)</td>
<td>0.022</td>
<td>2.3%</td>
<td>***</td>
</tr>
<tr>
<td>Level-one variance (student)</td>
<td>0.931</td>
<td>4.0%</td>
<td>***</td>
</tr>
<tr>
<td>Deviance (−2log V)</td>
<td>4640.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Explanatory power of models

| Pseudo R² level 1 (student) | 25.8% |       | 25.8% |
| Pseudo R² level 2 (school)  | 48.5% |       | 66.1% |

Note. ICC = intraclass correlation coefficient; * p < 0.05, ** p < 0.01, *** p < 0.001.

Fourth, the estimation of a three-level null model, which also accounts for classes, is presented in Table 2. Within-school differences still represent the largest share of score variance when classes are considered in the variance decomposition. On the other hand, differences between schools no longer reach statistical significance and should be considered as zero. In other words, the results indicate that the mean values of the school belonging scores are extremely close from one school to another, and it cannot be concluded that between-school differences exist. There are, however, statistically significant differences between classes within schools.

Table 2. Students’ sense of school belonging – estimates for null three-level linear model.

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Coeff.</th>
<th>S.E.</th>
<th>p</th>
<th>ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.552</td>
<td>0.037 ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random effect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level-three variance (school)</td>
<td>0.010</td>
<td>ns</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>Level-two variance (classroom)</td>
<td>0.038</td>
<td>***</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Level-one variance (student)</td>
<td>0.905</td>
<td>***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deviance (−2 log V)</td>
<td>4625.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ICC = intraclass correlation coefficient; *** p < 0.001.

8. Discussion

Previous studies have demonstrated the importance of the sense of school belonging for a number of important indicators of school adjustment, including motivation to tackle academic challenging tasks, academic achievement, self-esteem, and life satisfaction [16,34,36,37,54,55]. On the other hand, there is not enough clarity on the mechanisms
and factors of the school context that can reinforce the sense of school belonging. Among others, contextual level factors, namely the characteristics of the school itself, have been investigated but with quite inconsistent results, particularly regarding the size of schools. Moreover, understanding contextual effects remains, in general, a methodologically complex operation since it requires the use of sophisticated statistical instruments that would allow us to consider the hierarchical structure of the data [27]. Our objective, therefore, was to test the effect of school size on students’ sense of school belonging, always a poorly researched relationship, considering as control variables the academic self-efficacy, the sense of peer belonging, the presence of caring adult at school, friendship intimacy, and a set of classical socio-demographic characteristics (gender, age, family structure, and language spoken at home).

The estimation of two-level null model initially revealed a modest but statistically significant between-school variance, which permitted us to proceed with the analytical steps. The relatively small between-school variance was quite consistent with what has been observed in other studies, which have shown that the sense of belonging varies only modestly from one school to another. For example, Ref. [19] estimated that, in the Canadian province of New Brunswick, only 4% of the variation in sense of belonging occurs at the school level for high school students. In the United States, based on the results of the Add Health survey, Ref. [17] estimated that this proportion amounts to about 7% for students aged 12 to 17 years. In Iran, the study by Ahmadi et al. [53] provided an estimate of 10% for secondary school students in the province of West Azerbaijan. In general, the relative influence of schools on students’ sense of belonging and, more broadly, on their social–emotional achievement is small in magnitude compared to what is observed in the cognitive domain [17,26,65]. By way of comparison, at the end of compulsory school, in the Ticino region of Switzerland, between 5% and 13% of differences in results in mathematics, reading, and science are linked to the school attended [66]. The second step of the analyses consisted in introducing into the models the variables considered relevant to explaining differences in the sense of belonging. The effects of, in order of importance, caring adult at school, peer belonging, academic self-efficacy, and friendship intimacy have been shown to be statistically significant. Hence, students who considered themselves capable of and effective at coping with learning difficulties expressed a stronger sense of belonging to the school. Similarly, when the sense of group belonging was high, that is, when students had a greater sense of being identified, recognized, and accepted as a full member of a group of peers, their sense of belonging to the school was higher. The sense of school belonging was also correlated with the presence of caring adult at school and with friendship intimacy. For these last two variables, it appears that the more students report the presence of caring adults at school, who encourage them and listen to them when they need it, the higher the sense of belonging to the school. Similarly, when students have a close friend who truly understands them and who they can confide in, they tend to express a stronger sense of belonging. These results confirmed those of previous studies, i.e., that a positive relation exists between the sense of school belonging and important school adjustment indicators, such as academic self-efficacy [33] and socio-emotional development, among which there are the sense of peer belonging [50], the quality of relationship with adults at school [3], and the friendship intimacy [51]. It is interesting to note that the introduction of these variables into the model explained 25% of the differences between students within schools. This relatively large proportion indicates that the determinants of school connectedness at the individual level were well-controlled, which is important because the identification of a school effect depends on the extent to which studies are able to control for the characteristics of the individuals [25,67]. The introduction of these individual level variables also made it possible to explain partially the between-school variance (about 48%), showing that part of the differences between schools are linked to the initial characteristics of the school population. After controlling for these variables, a statistically significant residual between-school variance, representing the real school effect, remained and explained 1.15% of the variance in scores. Once the existence of this modest school effect on the sense of
belonging has been established, the question then arose as to the nature of this effect, or in other words, which characteristics of the school are associated with the sense of belonging. Hence, the introduction of the school size into a final model aimed at further explaining the between-school variance revealed, in accordance with the literature, that this hypothesis was well-founded, since the size of the structures had a statistically significant negative effect ($p = 0.05$, i.e., the threshold of significance) (Table 1).

Thus, at this stage, it could have been concluded that, as school size increases, the sense of belonging decreases, as already shown in previous studies [68]. However, introducing an intermediate level in the analysis resulted in a loss of significance in the effect previously noted of the school size on the sense of belonging since the between-school variance was no longer statistically significant in a three-level model. This is a result with far-reaching consequences, since it means that the school effect highlighted in the above was nothing more than an illusion linked to the failure to take into account this intermediate contextual level. These results confirm previously made observations by Opdenakker and Van Damme [63] and further highlight the importance to consider the full hierarchical structure of the data as recommended by them and by Hill and Rowe [64]. In the field of education, the study of the effects of the school context is a long-standing topic that began with the work of Coleman et al. in 1966 [69]. Since then, a great deal of research has attempted to determine the extent to which students’ outcomes can be influenced by the context in which they are immersed, which can be either the school or the classroom [70–72]. The question of the most relevant contextual levels to consider in order to understand differences in academic achievement arose quite quickly and was the subject of major methodological difficulties, particularly because of the aggregation bias [73]. Multilevel models were born from this need to provide an answer to the question of the choice of the unit of analysis and finally made it possible to establish the superiority of the class effect over the school effect [74]. It is now known that it is at this level that most of the variability in learning is played out in most countries [75]. Our study confirms that it is at this level that also most of the variability of the sense of school belonging is played.

Thus, although we can no longer speak of a school effect, it seems, on the other hand, that the classroom represents a more relevant level of context for the analysis of differences in the sense of belonging, since it represents 4% of the total variance of the scores. In terms of model specification, the most appropriate choice appears to be a two-level model that includes only students and classroom. The idea that in terms of a sense of belonging, the most important things happen in the classroom is a result that echoes ecological systems theory [76], in which there is a proportionally inverse relationship between the magnitude of the context effect and the distance separating the context from the individual. Within the education system, the school appears to be a context that is further away from the student than the classroom, which could explain why it is preferable to focus on the latter. Teachers in the classroom play a major role in shaping the students’ school experience and in developing a sense of belonging to the school. According to several studies [77,78], the quality of the teacher–student relationship is a strong predictor of student behavioral outcomes and academic achievement and [2] showed that teacher support is one of the best predictors of school belonging. It should be noted that the few studies that rely on three-level models that simultaneously integrate classes and schools [65,79,80] indicate that the share of variance in socio-emotional achievements linked to differences between classes within schools is equivalent to or greater than the share of variance linked to differences between schools. This, together with the results of our study, further highlights the importance to consider the classroom level, more than the school level, when thinking about interventions to enhance school belonging.

**Limitations and Future Perspectives**

Despite the use of a methodologically sound analysis, this study has some limitations. First, the results presented in this study, like all those produced using multilevel analysis, are based on correlations and should therefore be interpreted as such and not in terms
of causal relationships. A second limitation is related to the way the sample was built. The aggregation of data collected over four successive school years provides a sample of sufficient size to proceed with the analysis: 1698 students divided into 27 groups, the latter corresponding to a school for a given school year. Behind these 27 groups, however, there are only 20 distinct school institutes, 4 of which participated several times in the research during the period under consideration. Thus, even if the school years and the students differ, it can be assumed that the repeated presence of these four schools mitigates somewhat the variability between groups insofar as the conditions prevailing within them (size, climate, etc.) cannot change considerably from one year to the next. Moreover, although the instrument used in this study to measure sense of school belonging according to previous research is reliable [60], it consisted of only two items. In order to confirm our results, it would be appropriate for future research to consider different instruments to measure the construct.

The results and previous research [75] showed that the classroom level would have explained more than the school level in terms of variability in the sense of school belonging; however, the data collected by the MDI survey do not allow for a characterization of the classrooms and the processes that take place within them, but this is certainly a promising work hypothesis to be explored in future studies. In fact, recent literature seems to indicate that it is the climate fostered in the classroom by the teacher and not aspects such as class size that influence the sense of belonging at school [2,81].

9. Conclusions

This research is of twofold interest, since it provides advances in knowledge on both the link between contextual effects and the sense of school belonging, and the implementation of multilevel analysis, an analytical approach that is now favored in the investigation of these issues [62]. Indeed, the present study illustrates the fact that previous research may have overestimated the effect of schools on the sense of school belonging. As our study confirms, the measurement of contextual effects should not be reduced to the simple application of the multilevel model to data with a hierarchical structure. It is essential to think carefully about the number of levels to be considered in the analysis; otherwise, erroneous results and conclusions may be reached. From this point of view, the present study is a particularly telling example, as it questions the importance of schools on the sense of belonging as it has been observed in some studies and, consequently, the importance of the characteristics of these schools in promoting the sense of being part of the school community. More broadly, it also raises the question of which school contexts are more relevant in order to better understand individual differences in the sense of school belonging. This is an essential element in the formulation of a theory on the development of this feeling that has yet to be constructed.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of SUPSI (protocol code 8870, 28 October 2021).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy agreement made with the school authorities.

Conflicts of Interest: The authors declare that there are no conflict of interest or potential competing interests.
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